

Koon-Kiu Yan

Curriculum Vitae
December 2007

Contact Information: Address: Department of Condensed Matter Physics and Material Science, Brookhaven National Laboratory, Upton, NY 11973. Phone: 631-902-3895 (M), 631-344-3852 (O) Email: kyan@bnl.gov Homepage: http://www.cmth.bnl.gov/~kyan	Personal Information: Gender: Male Date of Birth: Dec 04, 1975 Citizenship: Hong Kong, China Marital Status: Married
---	---

EDUCATION:

- 2002-2007 Ph.D. in Physics, Stony Brook University.
Dissertation Title: Studies on Biological Evolution and Biological Networks
—A Statistical Physics Approach
Dissertation Advisor: Dr. Sergei Maslov
- 2000 M.Phil. in Physics, The University of Hong Kong.
Thesis Title: The Phase Diagrams of certain Iterative Cellular Automata
Thesis Advisor: Prof. H. F. Chau
- 1997 B.Sc. (First Class Honor) in Math and Physics, The University of Hong Kong.

RESEARCH EXPERIENCE:

Theoretical and computational studies of complex systems: Complex networks; Topology and evolution of protein networks; Noise and fluctuations in biological systems; Empirical analysis and modeling of proteome evolution; Bioinformatics of molecular networks; Data mining and algorithms for information networks including the WWW and citation networks; Emergent behavior and computational power of cellular automata.

AWARDS AND FELLOWSHIPS:

- 2007 two-month fellowship at Kavli Institute of Theoretical Physics, UCSB.
- 2006 Peter Kahn Fellowship, Department of Physics & Astronomy, Stony Brook University.
- 2003 T. A. Pond Prize (for the highest score in comprehensive exam), Department of Physics & Astronomy, Stony Brook University.
- 1999 Hung Hing Ying Scholarship, The University of Hong Kong.
- 1997 Dean's Honour List, The University of Hong Kong.

TALKS, POSTERS AND PARTICIPATION IN SCHOOLS, WORKSHOPS AND CONFERENCES:

- 2007 KITP Workshop: Evolution of Molecular Networks, Santa Barbara, CA.
- 2006 Les Houches Summer School – Session 85, Complex Systems, Les Houches, France.
Short Talk: Ranking Scientific Publications by Modeling Network Traffic.
- 2006 Computational Biology Workshop, Stony Brook University, Stony Brook, NY.
Poster: Network-based method for prediction and verification of indirect regulatory interactions between proteins.
- 2006 APS March Meeting, Baltimore, MD.
Talk: Parameters of Proteome Evolution from the Distribution of Sequence Identities of Paralogous Proteins.
- 2005 International Workshop: Complex Bimolecular Networks, Structure, Evolution and Function, Montauk, NY.
Local Organizer.
- 2005 ICTP School and Workshop on the Structure and Function of Complex Networks, Trieste, Italy.
- 2005 DIMACS Workshop on Biomolecular Networks: Topologies Properties and Evolution. Rutgers University, NJ.
Poster: Evolution of Protein Networks.
- 2004 Les Houches Summer School – Session 82, Multiple Aspects of DNA and RNA: from Biophysics to Bioinformatics, Les Houches, France.
Short Talk: Evolution of Protein Networks.

EMPLOYMENT HISTORY:

- 2003- Research Assistant, Department of Condensed Matter Physics & Material Science, Brookhaven National Laboratory.
- 2002-2003 Teaching Assistant, Department of Physics & Astronomy, Stony Brook University. (Gave recitations in an undergraduate course on differential equations.)
- 2000-2002 Teacher, Hoi Ping Chamber of Commerce Secondary School, Hong Kong.
- 1999-2000 Instructor, Department of Physics, Hong Kong University of Science and Technology. (Taught two undergraduate courses, one on elementary physics, one on basic astronomy.)

PUBLICATIONS:

1. Noise and fluctuations in PPI networks governed by law of mass action, **Koon-Kiu Yan**, Dylan Walker, Sergei Maslov, to be submitted.
2. Prediction and verification of indirect regulatory interactions in densely interconnected regulatory networks, **Koon-Kiu Yan**, Sergei Maslov, Ilya Mazo and Anton Yuryev, arXiv:0710.0892v2 (q-bio.QM).
3. Parameters of the proteome evolution from the histogram of sequence identities of paralogous proteins, Jacob Bock Axelsen, **Koon-Kiu Yan**, Sergei Maslov, Biol Direct. 2007 Nov 26;2(1):32.
4. Ranking scientific publications using a model of network traffic, Dylan Walker, Huafeng Xie, **Koon-Kiu Yan**, Sergei Maslov, J. Stat. Mech. P06010 (2007), arXiv:physics/0612122.

5. Optimal ranking in networks with community structure, Huafeng Xie, **Koon-Kiu Yan**, Sergei Maslov *Physica, A*, **373**, 831-836, (2007), arXiv:physics/0510107.
6. Effects of community structure on search and ranking in information network, Huafeng Xie, **Koon-Kiu Yan**, Sergei Maslov, in A.T. Skjeltorp and A.V. Belushkin (eds), *Dynamics of Complex International Systems: Networks and Bioprocesses*, Springer, (2006), arXiv:cond-mat/0409087.
7. Upstream Plasticity and Downstream Robustness in Evolution of Molecular Networks, Sergei Maslov, Kim Sneppen, Kasper Astrup Eriksen, **Koon-Kiu Yan**, *BMC Evol Biol* 2004 Mar 8, 4:9.
8. One Dimensional n-ary Density Classification Using Two Cellular Automaton Rules, H. F. Chau, L. W. Siu and **K. K. Yan**, *Int. J. Mod. Phys. C* 10, 883 (1999).
9. Classifying Rational Densities using Two One-Dimensional Cellular Automata, H. F. Chau, **K. K. Yan**, K. Y. Wan and L. W. Siu, *Phys. Rev. E* 57, 1367 (1998).
10. An Improved Upper Bound for the Critical Car Density of the Two-Dimensional Biham-Middleton-Levine Traffic Model, H. F. Chau, K. Y. Wan, **K. K. Yan**, *Physica A* 254, 117-121 (1998).

REFERENCES:

- Sergei Maslov
Physicist
Department of Condensed Matter Physics and Materials Science
Brookhaven National Laboratory
Upton, NY 11973
Phone: +1 (631) 344 3742
Fax: +1 (631) 344 2918
Email: maslov@bnl.gov
- John Reinitz
Professor
Department of Applied Mathematics and Statistics
Stony Brook University
Stony Brook, NY 11794
Phone: +1 (631) 632 1668
Email: reinitz@ams.sunysb.edu
- H.F. Chau
Associate Professor
Department of Physics
The University of Hong Kong
Pokfulam Road, Hong Kong
Phone: +852 2859 1925
Fax: +852 2559 9152
Email: hfchau@hkusua.hku.hk